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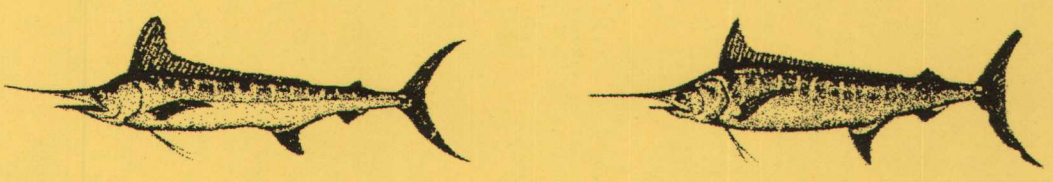
NMFS-SEFSC-340

BIG GAME FISHING IN THE NORTHERN GULF OF MEXICO DURING 1992



Paul J. Pristas and Anna M. Avrigian

U.S. Department of Commerce
National Oceanic and Atmospheric Administration
National Marine Fisheries Service
Southeast Fisheries Science Center
75 Virginia Beach Drive
Miami, FL 33149

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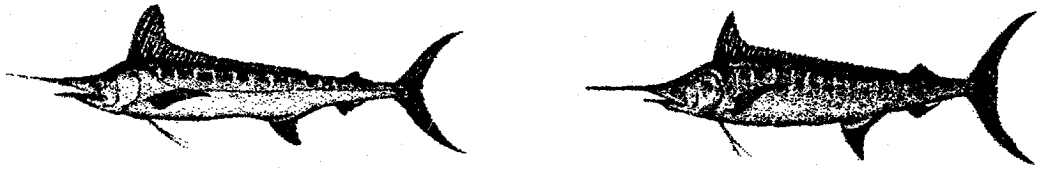

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National Marine Fisheries Service
Southeast Fisheries Science Center
Panama City Laboratory
3500 Delwood Beach Road
Panama City, FL 32408

or

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5258 Port Royal Road
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INTRODUCTION

Billfishes (i.e., blue marlin, *Makaira nigricans*; white marlin, *Tetrapturus albidus*; sailfish, *Istiophorus platypterus*; swordfish, *Xiphias gladius*; and longbill spearfish, *Tetrapturus pfluegeri*) were first identified as an abundant species grouping in the northern Gulf of Mexico in the mid-1950's by the U.S. Fish and Wildlife Service. This discovery prompted the advent of big game fishing in the Gulf. The New Orleans Big Game Fishing Club, organized in 1960 was the first club dedicated to this activity. Through their interest in the resource, they recorded data on their fishing activities, from which a summary report for the years 1966-1970 was produced by Eugene Nakamura, former Director of the National Marine Fisheries Service's (NMFS) Laboratory at Panama City, Florida. To obtain information on indices of abundance, as well as biological and ecological data on these species, scientists at the Panama City Laboratory began a Recreational Billfishing Survey in 1971.

On-site interviews with recreational anglers fishing for billfishes at major ports from St. Petersburg, Florida to Port Isabel, Texas, are conducted by port samplers throughout the season. Data are also obtained from anglers who voluntarily report, by phone or mail, information regarding their big game fishing trips. These data have been important to various fisheries managers in making decisions regarding this fishery. In this report, analyses are generally summarized for the northwestern, north central, and northeastern regions of the northern Gulf (Fig. 1). The northwestern Gulf (Texas) is divided into three sections: eastern (Freeport, TX to the Texas-Louisiana border), central (Port O'Connor to Corpus Christi), and southern (Port Mansfield to the Texas-Mexico border).

CATCH AND EFFORT

On-site dockside interviews and voluntary reporting by mail or phone provided data on billfishing effort (i.e., number of hours trolled for billfishes) and catches (includes boated, and released billfishes). To better estimate the recreational catch of billfishes, we also recorded reported catches in conjunction with driftfishing effort and reported catches when there was no information on effort. However, for continuity with previous yearly reports, these latter data are not included in the analyses of trolling effort.

The amount of trolling effort recorded during the 1992 season by the port samplers and voluntary reporting was 26,825 hrs (Table 1), an increase of 13% (3,027 hrs) over 1991. All three regions showed an increase in 1992 over 1991: 2% in the northeastern Gulf, 16% in the north central Gulf, and 46% in the northwestern Gulf. These increases cannot be precisely attributed to increased fishing however, as both fishing activity and sampling intensity affect these values. During the 22 years of this survey, the mean average recorded effort for the northern Gulf is 23,543 hrs, 12% less than that recorded in 1992.

A total of 708 marlins and sailfish was reported "caught" (which includes releases) in 1992 (Tables 1 and 2). The catch consisted of 48% blue marlin (337 fish), 24% white marlin (174 fish), and 28% sailfish (197 fish). Additionally, two spearfish (one boated, one released) were also reported during the season.

A genuine concern for the resource by sport anglers, and enactment of various federal and state fishing laws, has resulted in a continuing trend of releasing a majority of the catches (Fig. 2). From 1988 to 1992, the percentage of released billfishes has steadily increased from 51% to 69%. In 1992, 72% of the blue marlin, 70% of the white marlin, and 62% of the sailfish were released. By region, 67% of the catches were released in the northwestern Gulf, 83% in the north central Gulf, and 64% in the northeastern Gulf.

INDICES OF RELATIVE ABUNDANCE

Catch-per-unit-effort (CPUE) is normally used in stock assessment because the detailed information from other fisheries for billfishes is not sufficient for HPUE calculations. However, hooked-per-unit-effort (HPUE) data are available from our survey in the Gulf of Mexico. The HPUE indices are derived from the reported numbers of fishes hooked divided by fishing effort. Yearly relative abundances of blue marlin, white marlin, and sailfish for the 22-year period of this study are shown in Figure 3.

For blue marlin in 1992, the 0.022 fish/hr HPUE was a slight increase over the 0.021 rate recorded in 1991 (Fig. 3). This slight increase did not affect the yearly accumulative average (0.026), remaining 15% below the 22-year figure. Compared to 1991, the northwestern and north central Gulf HPUE's decreased from 0.024 to 0.023, and from 0.031 to 0.023, respectively, while the northeastern Gulf showed an increase in HPUE from 0.016 to 0.021. The yearly HPUE rate for blue marlin has remained below the yearly accumulative rate since 1987.

For white marlin, the 1992 HPUE (0.011) was slightly better than the historical low HPUE (0.010) in 1991 (Fig. 3). This increase is not very encouraging, however, as the yearly HPUE's for white marlin have fluctuated below the overall yearly average (0.034) since 1985. Compared to 1991, the northwestern Gulf HPUE decreased from 0.014 to 0.008, the north central Gulf HPUE (0.006) remained the same, and the northeastern Gulf HPUE increased from 0.011 to 0.016.

For sailfish, the HPUE (0.009) in 1992 was more than twice the 1991 rate and was the second continuous increase from the historic lows of 0.003 in 1989 and 1990 (Fig. 3). However, a single year's increase is not likely to increase the 22-year average which remained at 0.014. Compared to 1991, the HPUE for sailfish increased in all three regions: the northwestern Gulf increased from 0.014 to 0.026, the north central Gulf increased from 0.000 to 0.002, and the northeastern Gulf increased from 0.004 to 0.006.

AVERAGE WEIGHTS

Information about the health or general status of a fishery that may be used in fishery management decisions can be obtained from size data in conjunction with other data analyses. However, size limits imposed by many tournaments, along with federal and state size regulations, have strongly influenced the size of fishes brought to the docks. Therefore, when analyzing size data, one needs to be mindful of any bias that may result from these restrictions. Weight data recorded from all fishing methods (i.e., trolling, drifting, and live baiting) are presented in Table 3. Figure 4 presents

the yearly average weights for marlins and sailfish over the 22-year period.

Of the 71 blue marlin weights recorded during the season, the largest fish was the 749.0 lbs landed at Destin, Florida (Table 3). The average weight for this species in 1992 was 345.7 lbs, continuing an increasing trend that has existed the past several seasons (Fig. 4). The overall average weight reached a record high of 264.4 lbs in 1992. This follows the adoption of minimum size restrictions imposed in 1988 under the U.S. Fishery Management Plan for Atlantic Billfishes.

The largest white marlin of the 49 recorded weights was 81.3 lbs reported from Grand Isle, Louisiana (Table 3). This fish weighed nearly 10 lbs less than the largest (90.2 lbs) recorded in 1991. However, the average weight for white marlin increased from 53.3 lbs in 1991 to 54.6 lbs in 1992 (Fig. 4).

The weights of 68 sailfish were recorded during the 1992 season (Table 3), compared to 33 recorded in 1991. An 80 lb sailfish landed in South Padre Island, Texas was the largest reported in 1992. This season's average weight of 45.0 lbs (Fig. 4) did not change the overall average weight of 42.6 lbs.

BAITS

Changes in baits and fishing methods could influence hook-up and catch rates, thus affecting apparent relative abundance estimates. Slower trolling with natural baits was the predominant fishing method in the northern Gulf, prior to the late 1970's. Comparatively fast trolling with artificial baits (i.e., lures) has become the prevalent style of fishing for billfishes since then.

Data on the sampled number of hours trolled (total = 27,864 hrs) using various types of baits and the resulting HPUE's are presented in Table 4 for the northern Gulf of Mexico and its three regions. The popularity of trolling only artificial baits (Table 4a) was, again, the dominant fishing method and accounted for 81% (22,685 hrs) of the fishing effort, followed by both bait types (i.e., dead plus artificial) simultaneously (15%); dead baits (3%); and live baits (1%). This same pattern has prevailed over the last several seasons. When fished independently of each other (Table 4a), live baits in the northern Gulf produced an HPUE (0.086) that was roughly double the HPUEs for dead bait (0.042) and artificial baits (0.040). When both baits were trolled simultaneously (Table 4b), artificial baits had the highert HPUE in all three regions and for the overall northern Gulf (0.024).

RELATED OBSERVATIONS

1. The first reported billfish catch of the season came from Freeport, Texas. The crew on the boat "GREAT ESCAPE" reported releasing a blue marlin February 22, 1992, estimated at 350 lbs.

2. This was the first season since 1989 that a "Grand Slam" (i.e., catches of a blue marlin, white marlin, and sailfish on a one-day trip) was reported. On July 3rd, during the "Deep Sea Round Up" at Port Aransas, Texas, the crew on the boat "CATCHUM" had a Grand Slam.

ACKNOWLEDGMENTS

The National Marine Fisheries Service's billfishing survey has received considerable support from the recreational fishing community. Recreational fishery constituents have provided both indirect and direct assistance to assure a successful outcome of this study. This support is gratefully appreciated, and we thank those who helped (Appendix 1).

Approximately 3,073 interviews were conducted during the 1992 season. For a job WELL DONE, we thank: Julie Callais, Grand Isle, LA; Wm. "Hank" Geier, Jr., South Padre Island, TX; R. Clifton Grimes, Destin, FL; Pam Heard, Port Aransas, TX; Craig Martin, Pensacola, FL/Mobile, AL; and Joe Yurt, South Pass, LA.

Appendix 1. Persons and tournament organizations that actively assisted the NMFS Recreational Billfishing Survey in the northern Gulf of Mexico during the 1992 fishing season

Name	Location
George Ballard	Pensacola, FL
Bay Point Invitational Tournament	Panama City, FL
Blue Marlin Classic Tournament	Perdido Key, FL
Bonnie Boozer	Pensacola, FL
East Pass Towers Tournament	Destin, FL
Florida West Coast Championship Tournaments	Madeira Beach, FL
Fort Walton Beach Sailfish Club	Ft. Walton Beach, FL
Don Green	San Marcos, TX
Nancy Hanna	Pensacola, FL
Jim Hubbard	Houston, TX
Mobile Big Game Fishing Club/Ladies	Mobile, AL
New Orleans Big Game Fishing Club/Ladies	New Orleans, LA
Pensacola Big Game Fishing Club/Ladies	Pensacola, FL
Poco Bueno Tournament	Port O'Connor, TX
Donnie Rozier	Pensacola, FL
Bonnie Yaste	Pensacola, FL

Table 1. Hours trolled and billfishes Hooked (H), Boated (B) and Released (R) in the northern Gulf of Mexico during 1992. Hooked is defined as billfish boated plus released plus lost. No swordfish were caught trolling.

	Hours trolled[2]	Blue Marlin			White Marlin			Sailfish			Total all species		
		H	B	R	H	B	R	H	B	R	H	B	R
Northeast Gulf	**13,289**	**274**	**41**	**84**	**212**	**37**	**72**	**78**	**28**	**25**	**564**	**106**	**181**
St.Petersburg	1,839	11	2	7	9	2	4	19	9	3	39	13	14
Panama City	1,987	42	8	14	44	10	14	13	9	1	99	27	29
Destin	1,589	24	4	11	30	6	7	15	1	8	69	11	26
Pensacola	4,147	90	7	25	83	11	34	16	6	5	189	24	64
Mobile	3,727	107	20	27	46	8	13	15	3	8	168	31	48
North Central Gulf	**8,273**	**193**	**18**	**73**	**48**	**2**	**28**	**13**	**3**	**8**	**254**	**23**	**109**
Grand Isle	1,827	52	3	20	16	2	6	4	2	1	72	7	27
South Pass	6,446	141	15	53	32	0	22	9	1	7	182	16	82
Northwest Gulf	**5,263**	**119**	**16**	**48**	**40**	**10**	**15**	**138**	**36**	**85**	**297**	**62**	**148**
East Texas	56	3	0	2	1	0	0	3	0	3	7	0	5
Central Texas	1,236	54	10	19	25	4	7	41	8	26	120	22	52
South Texas	3,971	62	6	27	14	6	8	94	28	56	170	40	91
All Areas Total	**26,825**	**586**	**75**	**205**	**300**	**49**	**115**	**229**	**67**	**118**	**1,115**	**191**	**438**

[2] Hours trolled are based on net hours, fight time is excluded.

Table 2. Numbers of billfishes reported as Boated (Boat) or Released (Rel) with no effort recorded for billfishing other than trolling effort in the northern Gulf of Mexico during 1992

Gulf of Mexico Area	Blue Marlin		White Marlin		Sailfish		Total All species	
	Boat	Rel	Boat	Rel	Boat	Rel	Boat	Rel
Northeast Gulf	3	5	0	7	1	2	4	14
North central Gulf	0	3	0	0	0	0	0	3
Northwest Gulf	16	30	3	0	7	2	26	32
Total all areas	19	38	3	7	8	4	30	49

Table 3. Numbers of billfishes and weights (pounds) recorded in the northern Gulf of Mexico during 1992. Data include trolling, drifting and live baiting methods. No weights were recorded in East Texas.

SPECIES	St.Pete	Panama City	Destin	Pensacola	Mobile	Grand Isle	South Pass	Central Texas	South Texas	All Ports Combined
BLUE MARLIN # Weighed	2	7	5	7	21	3	14	9	3	71
Largest	509.0	581.8	749.0	386.5	743.6	379.0	503.2	505.8	422.0	749.0
Smallest	153.0	210.3	229.0	205.0	242.6	260.2	153.0	207.0	319.0	153.0
Average	331.0	361.3	445.7	272.2	370.2	302.7	331.9	303.4	385.3	345.7
WHITE MARLIN # Weighed	2	7	4	10	8	2	0	3	2	38
Largest	61.0	67.0	64.6	70.5	62.8	81.3	-	58.0	52.0	81.3
Smallest	44.0	49.5	40.8	45.3	34.0	63.8	-	46.5	44.9	34.0
Average	52.5	58.1	51.0	53.9	53.3	72.6	-	50.8	48.5	54.6
SAILFISH # Weighed	8	9	1	6	3	2	1	6	18	54
Largest	43.2	77.0	36.4	47.0	63.8	47.5	34.2	57.8	80.0	80.0
Smallest	29.0	34.7	36.4	31.3	35.8	43.2	34.2	34.8	33.0	29.0
Average	36.2	49.9	36.4	37.3	52.3	45.4	34.2	43.1	49.7	45.0
SPEARFISH # Weighed	0	0	0	0	1	0	0	0	0	1
Largest	-	-	-	-	53.8	-	-	-	-	53.8
Smallest	-	-	-	-	53.8	-	-	-	-	53.8
Average	-	-	-	-	53.8	-	-	-	-	53.8

Table 4. Hours trolled and number of billfishes hooked-per-hour-of-trolling (HPUE) with various baits (a) and combinations of baits (b) fished in the northern Gulf of Mexico, 1992

(a)

Gulf of Mexico Areas	Baits trolled independently					
	Dead bait		Live bait		Artificial bait	
	Hours trolled	HPUE	Hours trolled	HPUE	Hours trolled	HPUE
Northeastern	708	0.026	84	0.071	10,098	0.042
North Central	50	0.040	61	0.098	8,228	0.029
Northwestern	152	0.111	17	0.117	4,370	0.055
All areas combined	910	0.042	162	0.086	22,685	0.040

(b)

Gulf of Mexico Areas	Baits trolled simultaneously			
	Hours trolled	Natural[1] HPUE	Artificial HPUE	Combined HPUE
Northeastern	3,008	0.016	0.023	0.039
North Central	262	0.011	0.015	0.026
Northwestern	837	0.014	0.029	0.043
All areas combined	4,107	0.015	0.024	0.039

[1] Natural bait includes both dead and live baits.

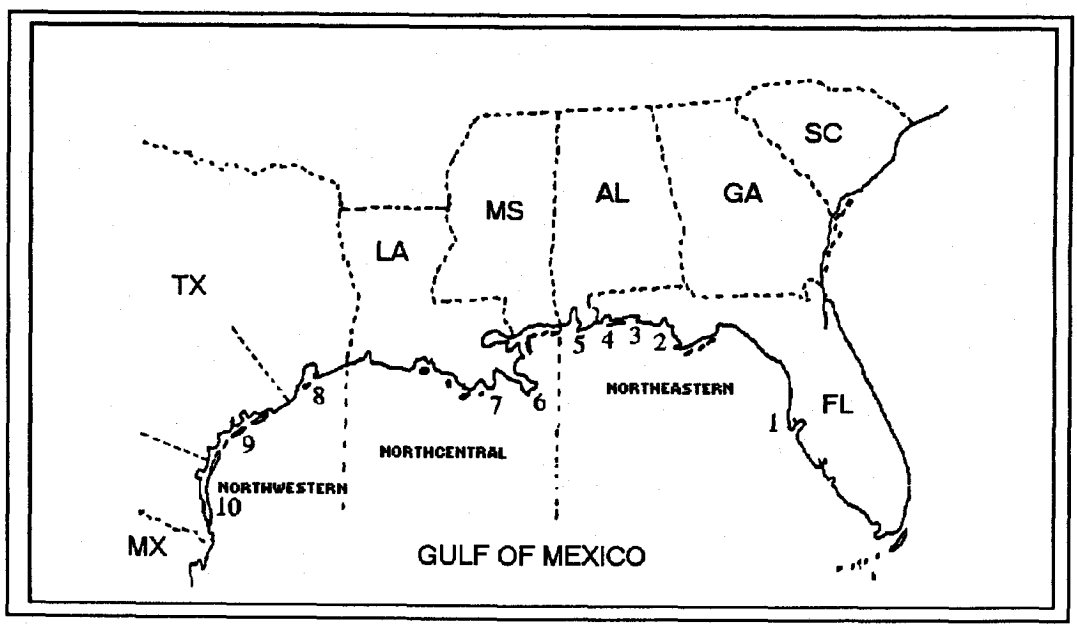


Figure 1. Primary sampling ports of the Recreational Billfishing Survey in the northern Gulf of Mexico.

1. St. Petersburg
2. Panama City
3. Destin
4. Pensacola
5. Mobile
6. Grand Isle
7. South Pass
8. East Texas
9. Central Texas
10. South Texas

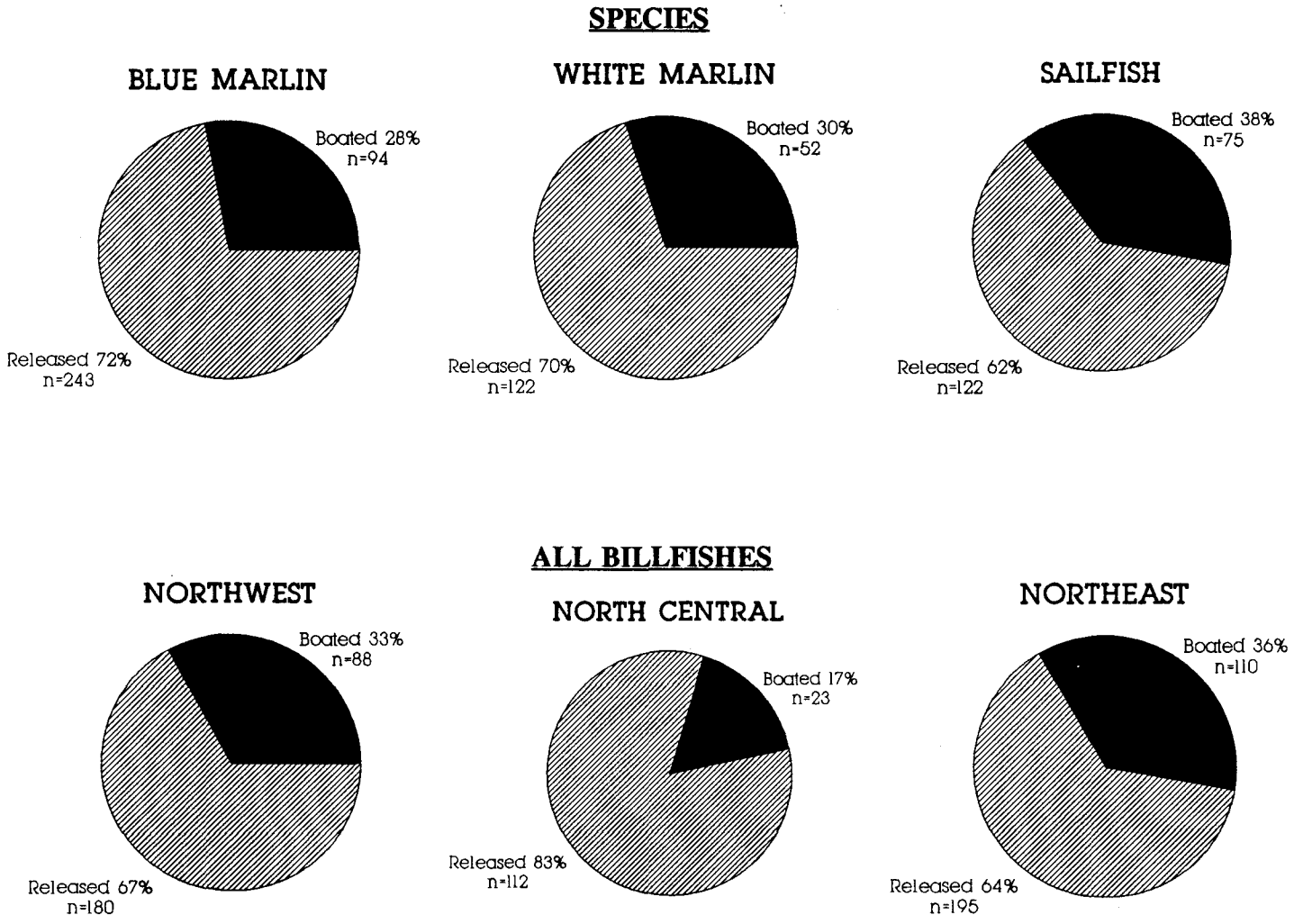
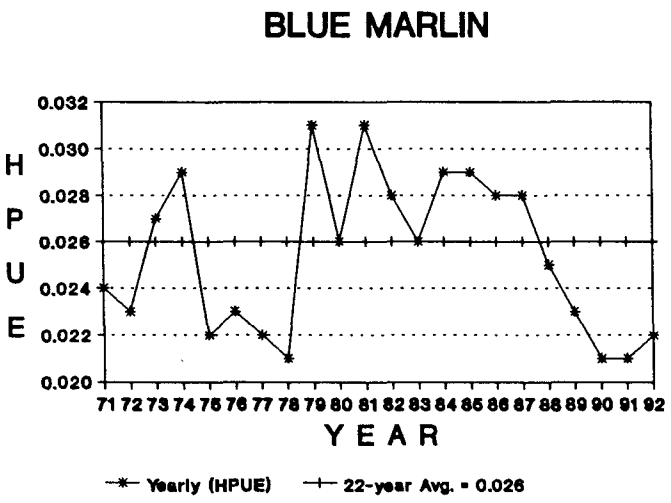
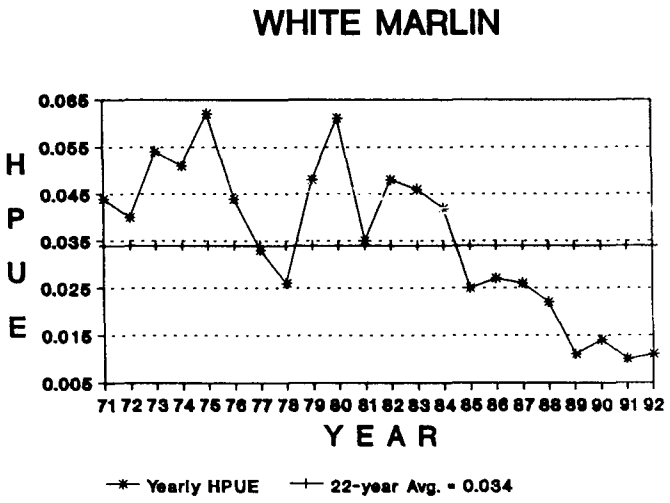


Figure 2. Percentage of billfishes boated vs. released (n=numbers of billfishes) in the northern Gulf of Mexico, 1992.





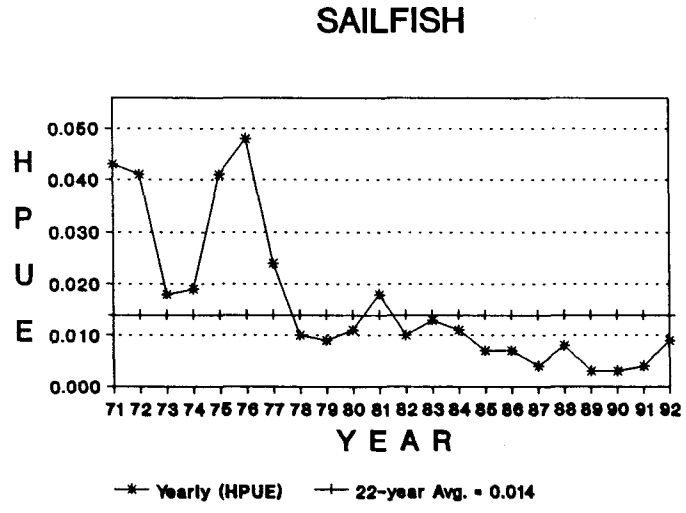
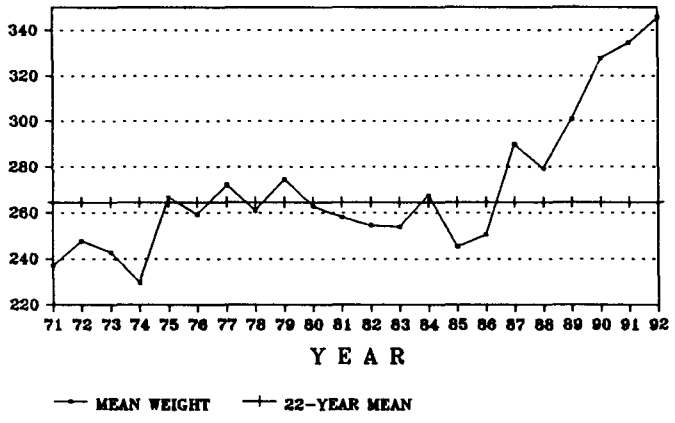
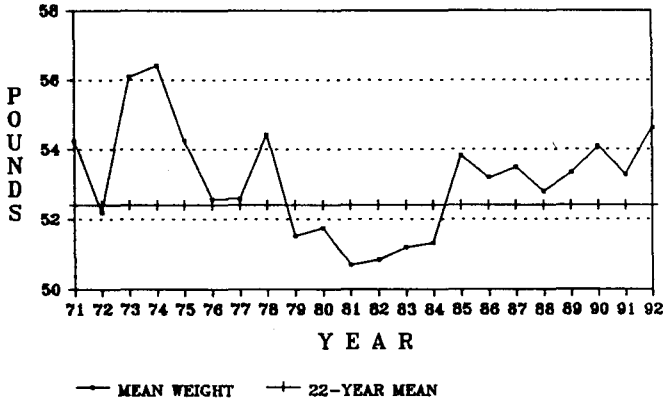


Figure 3. Numbers of billfishes hooked-per-hour-trolling (HPUE) in the northern Gulf of Mexico, 1971-1992. Straight line indicates 22-year average HPUE for each species.

BLUE MARLIN



WHITE MARLIN



SAILFISH

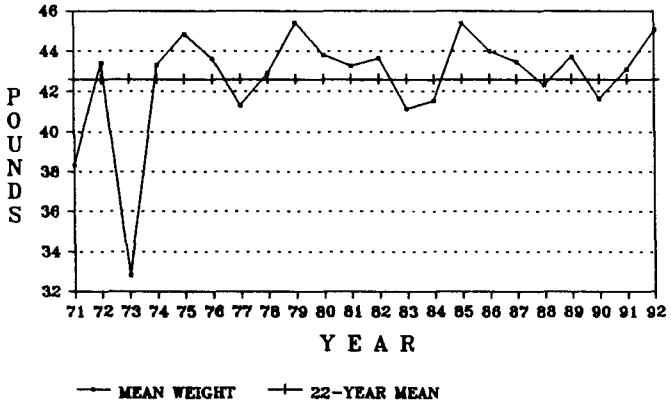


Figure 4. Yearly mean weights (lbs) and 22-year mean for blue marlin, white marlin, and sailfish.